Pneumococcal Pericarditis in An Eight-Month-Old Child

LAWRENCE MADOFF, M.D., *Oakland*

WITH THE WIDESPREAD use of antibiotics, particularly penicillin, reported cases of pneumococcal pericarditis in infants and children are rare. Benzing and Kaplin in 1963 reviewed seven cases of purulent pericarditis they had observed over a 10-year period, one of which was due to pneumococcus.[2] The following is a case report of an eight-month-old infant in which the diagnosis was not immediately considered, and a brief discussion of management and treatment.

Report of a Case

The patient was an American Indian boy born 10 April 1965. Delivery was normal and birth weight was eight pounds three ounces. He was apparently in good health until two weeks before his admission to Highland General Hospital, 1 January 1966. Illness had begun with cough and vomiting. Several days later the child began to have numerous loose bowel movements daily and a physician prescribed benylin expectorant and oxytetracycline (Terramycin®) syrup. The condition of the patient apparently improved and the diarrhea subsided for four or five days. Three days before admission to hospital, however, the patient began to vomit several times daily. The mother at this time noticed the onset of rapid breathing and fever. She gave the child aspirin, 60 mg (1 grain) two to three times daily for three days. The patient again was seen by a physician who made a diagnosis of dehydration and acidosis and had him admitted to Highland General Hospital.

Physical Findings

On admission, 1 January 1966, the patient appeared well developed and nourished, ill and lethargic but in no acute distress. Temperature was 39.4°C (103°F), respirations were 48 per minute and the pulse was 160 per minute and regular. There was some flaring of the alae nasae and grunting respirations. On examination of the chest the breath sounds were normal and no rales were heard. The heart sounds were normal. The abdomen was slightly distended and the edge of the liver, nonpulsatile, was palpable 1 cm below the right costal margin. Bowel sounds were active. Skin rubor was good. No other abnormalities were noted on physical examination.

Sodium content of the serum was 133 mEq, potassium 5.8 mEq and carbon dioxide 10.5 mEq per liter. No abnormality was noted in the cerebral spinal fluid. Leukocytes numbered 14,950 per cu mm of blood—42 per cent polymorphonuclear cells, 13 per cent band forms, 5 per cent metamyelocytes and 40 per cent lymphocytes. Urinalysis showed a slight trace of acetone and albumin, and on microscopic examination there were two to four leukocytes and four to six erythrocytes per high power field. An x-ray film of the chest was interpreted as within normal limits with the

From Department of Pediatrics, Highland General Hospital, Oakland.

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Reprint requests to: Department of Pediatrics, Highland General Hospital, 2701 14th Avenue, Oakland, California 94606 (Dr. Robert Cooper).

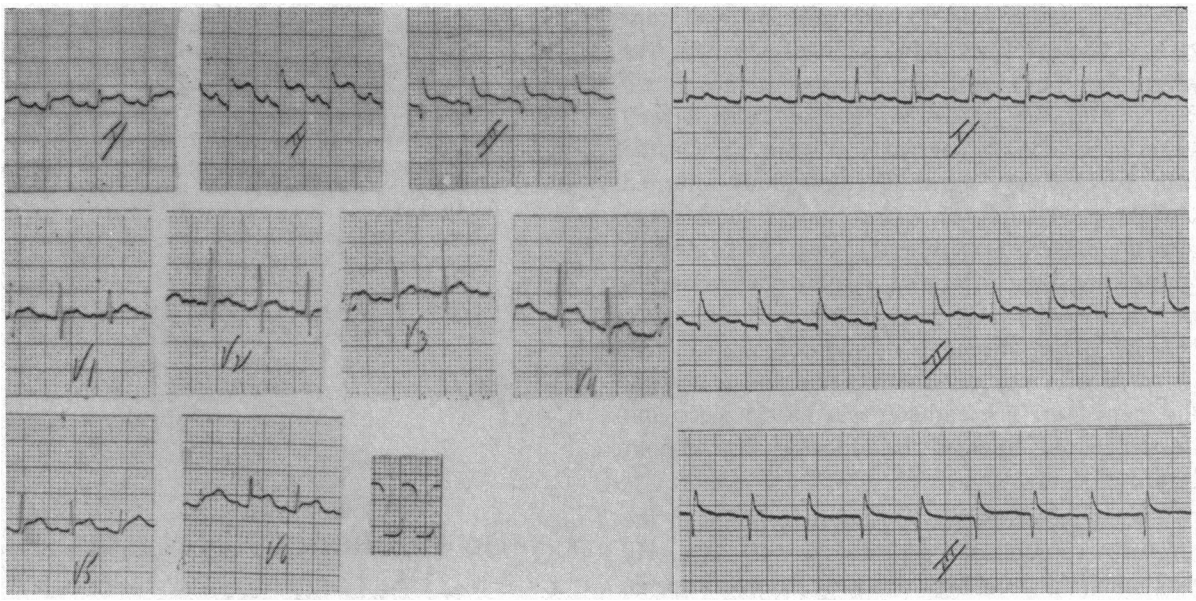

Figure 1.—*Left,* electrocardiogram taken 12 hours after admission showing ST elevation throughout chest leads. *Right,* electrocardiogram taken two hours after pericardiocentesis, showing lowering of ST segments.

heart size at the upper limits of normal. Blood was drawn for culture and sensitivity tests.

The initial impression was acidosis and mild salt and water depletion secondary to vomiting and diarrhea. Replacement and maintenance therapy with intravenous fluids was begun. Twelve hours after admission there was no improvement. The abdomen was more distended. The liver edge was now palpable 4 cm below the right costal margin. Grunting respirations and tachycardia continued. On auscultation of the chest, normal breath sounds were heard, without rales, and heart sounds were normal. No abnormality was noted on rectal examination. An electrocardiogram taken at this time showed ST elevation throughout the chest leads (Figure 1). The impression at that time was myocarditis and congestive heart failure secondary to sepsis. Administration of digoxin, penicillin and kanamycin was begun. During the next 12 hours the patient's condition worsened. Color was poor and respirations irregular and decreasing. Endotracheal intubation was carried out and respiration was assisted with positive pressure. Sodium bicarbonate solution was given intravenously with moderate improvement. After an hour of assisted respiration, the endotracheal tube was removed and the patient breathed spontaneously with improved color. X-ray films of the chest at this time showed infiltrations of both upper lobes and cardiomegaly (Figure 2). The following morning, 32 hours after admission, in consultation with members of the cardiology service, pericardiocentesis was performed through the base of the xyphoid process, although signs of tamponade were not present. On removal of 75 ml of thick, purulent material, the child's respiratory effort and color immediately improved. On auscultation a pericardial rub was clearly audible. A Gram-stained specimen of the aspirated fluid showed diplococci. Diplococcus pneumoniae grew on the blood culture taken on admission. Subsequently a culture of the aspirate grew the same organism.

In consultation with members of the thoracic surgery service, it was decided to continue medi-

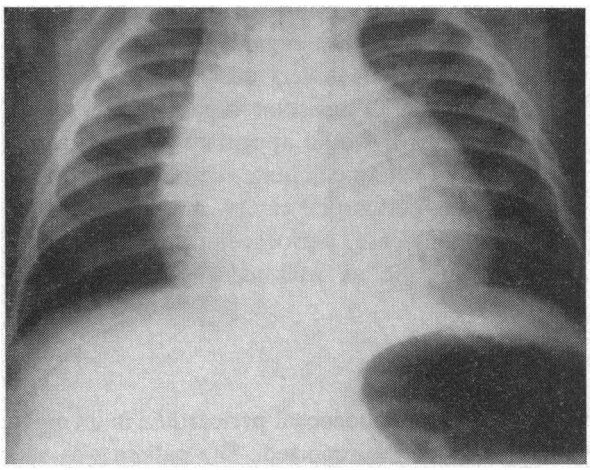

Figure 2.—Repeat chest film taken on second day in hospital, showing infiltrations of both upper lobes and cardiomegaly.

cal management and to perform pericardiocentesis as needed. Five million units of penicillin was given daily by vein. An electrocardiogram two hours after the first aspiration of fluid showed lowering of the ST segments (Figure 1). On the fifth hospital day grunting respirations returned and the pericardial rub was no longer audible. On aspiration carried out at that time 30 ml of cloudy, serous fluid was withdrawn. A polyethelene catheter was inserted into the pericardial sac through a No. 13 gauge (French) needle and the sac was irrigated with one million units of aqueous crystalline penicillin. The catheter was left in place and the procedure repeated the following day without return of fluid.

The patient continued to improve although the temperature remained elevated for 10 days. He was maintained on high doses of parenteral penicillin. On the seventeenth hospital day he was discharged completely recovered. Long acting penicillin was given intramuscularly on discharge. During four months of intermittent observation in the outpatient department the child remained well, and an x-ray film showed a moderate decrease in cardiac silhouette.

Comment

Reports in the literature suggest that pneumococcal pericarditis is a result of direct extension from a pneumonic process in the adjacent lung parenchyma.[3,5] It is generally recommended that surgical drainage is the therapy of choice in infants and children.[1,2,4] The patient in the present case was successfully treated with repeated pericardiocentesis and antibiotics alone. Diplococcus pneumoniae, the only organism cultured in the case here reported, is very susceptible to penicillin. However, if a resistant organism is present, surgical drainage would appear to be indicated in order to completely eliminate the offending organism from the pericardial cavity. As was illustrated in the present case, periocardiocentesis can be a useful diagnostic as well as a therapeutic procedure.

Summary

A case of pneumococcal pericarditis in an eight-month-old child is reported. The patient was successfully treated with antibiotics and periocardiocentesis.

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Cystic Pulmonary Metastasis Complicating Angiosarcoma Of the Scalp

DOUGLAS W. CARDOZO, M.D., *Santa Rosa*; PHILLIPS L. CLAUD, M.D., AND IRENE CHEN, M.D., *El Centro*; AND ALFRED A. THURLOW, JR., M.D., *Santa Rosa*

ACCORDING TO FREILICH and Coe,[2] a review of the literature from 1918 to 1934 disclosed only 29 reported cases of angiosarcoma, some of which Kinkade[3] believed were not true angiosarcomas. Kinkade reviewed the literature from 1939 to 1949 and "after reading reports of 118 cases labeled with some name suggestive of a malignant vascular tumor," he felt compelled to reject 41 of them "either because there was an inadequate or no histological report, or because . . . the illustrations and texts described a tumor of some other kind." Although he pointed out that the true incidence of angiosarcoma is actually greater than reported, these tumors are not often encountered. The case here reported showed the unusual added features of cystic pulmonary metastasis and hemopneumothorax, demonstrated by x-ray study of the chest and confirmed by autopsy, and adds another possibility to the differential diagnosis of cystic disease of the lung.

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Reprint requests to: 50 Montgomery Drive, Santa Rosa, California 95404 (Dr. Cardozo).